

REMARKS

In an Official Letter dated December 10, 2002, the Examiner subjected Claims 1-11 to a restriction, requiring Applicants to make an election to continue with the prosecution of one of eight species. Applicants elected Species VIII without traverse. Claims 6-10 remain pending in the current application.

The Examiner indicated several informalities with the drawings. Revised drawings have been submitted to correct these informalities, as indicated above. Additionally, the Examiner objected to the Figures for not showing every feature of the invention as specified in the Claims. Particularly, the Examiner pointed out the "rounded surface" of the pin in Claim 1. Applicants believe that the objection to the drawings are unfounded. The rounded surface of the pin could be the ball pressed onto end of pin. The ball has a rounded surface and thus, the first end of the pin comprises a rounded surface. Therefore, Applicants respectfully request that this objection be withdrawn.

The Examiner also noted several informalities in the Specification and Claims. These informalities have also been corrected to comply with the formal requirements set forth by the Examiner.

The Examiner rejected Claims 6-10 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,110,087 to Studtmann et al. (hereinafter the '087 reference). The '087 reference teaches an electrically actuated solenoid to control a hydraulic flow valve. The '087 reference locates a working air gap surface at a position that is at a greater circumferential radius than a pole piece. The '087 reference discloses using the major diameter of the solenoid valve, minus the thickness of the coil return path casings, for the secondary (or non-force producing) magnetic gap. The primary (or useful) force-producing gap also uses the major diameter minus the thickness of the thinned armature cylindrical web. These features minimize parasitic reluctance of the secondary gap and increase rate of change of the permeance of the primary gap, both of which increase useful output force. However, this design approach makes the valve somewhat difficult to manufacture and is also difficult to

seal and use with the pressure required with hydraulic pressures typically found in brake systems.

The design according to the present invention is based on using non-magnetic material for the pressure containing structure. The magnetics of the design uses a construction that is completely different than that used in the '087 reference. Specifically, the primary and secondary gaps are located in different areas compared to the gaps in the '087 reference. Additionally, in the design of the valve according to the present invention there are multiple internal lateral and axial primary magnetic gaps. Therefore, the design and location of various components of the present valve are distinct from those shown in the '087 reference. Also, the '087 reference specifically teaches away from the design used in the present invention. Particularly, the '087 reference states that "the area of the surfaces of the radial working gap GG and return gap RR are significantly increased by the relatively large outward radial location of the radial working gap GG and RR surfaces. The permeance of the radial working gap GG and return gap RR are greatly enhanced by these large gap areas." (Column 9, Lines 29-34). The design of the present invention does not show large gap areas at relatively large outward radial locations. In fact, the opposite is shown and described in the application.

In view of the foregoing remarks and arguments, it is believed that Claim 6 is in condition for allowance. Since Claim 7-10 depend from Claim 6, it is believed that those claims are also allowable. Therefore, Applicants contend that all of the claims are patentable over the Examiner's rejections, and requests the withdrawal of the rejection of Claims 6-10.